

## BARREL ROOFED BUS SHELTERS

<b>Organisation</b>	<b>South Yorkshire Passenger Transport Executive</b>
<b>Trigger</b>	<ul style="list-style-type: none"> <li>The new Operations Manager was totally dissatisfied with the design of the existing bus shelters.</li> </ul>
<b>Objectives</b>	<p><i>The new bus shelters should:</i></p> <ul style="list-style-type: none"> <li>Increase passengers' feelings of safety.</li> <li>Be easily maintainable (e.g. repairs after vandalism).</li> <li>House an information carousel.</li> <li>Look good so that local people take pride in them.</li> <li>Be available at a reasonable cost.</li> </ul>
<b>Tools/techniques</b>	<ul style="list-style-type: none"> <li>A design partnership mode of operation emerged.</li> <li>Weekly meetings between SYPTE Operations Managers and the supplier's designers/production people at supplier's site.</li> </ul>
<b>Enablers</b>	<ul style="list-style-type: none"> <li>Commitment from top management</li> <li>Flexible supplier willing to redesign its current models.</li> <li>Strong Operations Manager with a 'vision'.</li> </ul>
<b>Tensions</b>	<ul style="list-style-type: none"> <li>Polycarbonate end and side panels are more vandal-resistant than the glass equivalent but offer less visibility, look less attractive and cost more; glass was chosen.</li> </ul>
<b>Impact</b>	<ul style="list-style-type: none"> <li>Feedback from the public has increased and residents are taking 'ownership' of their local bus shelters.</li> <li>Passengers report feeling safer in new illuminated shelters.</li> <li>Vandalism is down.</li> </ul>
<b>Lessons</b>	<ul style="list-style-type: none"> <li>Working in partnership with the supplier, visiting the supplier's site ensures optimal design.</li> <li>Purchasing budget and maintenance budget under control of same manager ensures in-use costs are considered.</li> </ul>

### Synopsis

This case illustrates a product designed to increase resistance to crime in the form of violence against the person. The case analyses the design, development and manufacture of a new bus shelter for South Yorkshire Passenger Transport Executive. The new Operations Manager became responsible for bus shelters in South Yorkshire when SYPTE took over the responsibility for the bus infrastructure from the local councils some 10 years ago. He found the existing shelters totally unsatisfactory. Passengers felt unsafe and shelters were heavily vandalised. This case describes how he put his 'see and be seen' vision into practice by finding a supplier with whom he could work to design a shelter which increased the safety of the travelling public. After six months of intensive work the new design was tested and approved. 1500 of these new shelters have now been installed. As a result of the new design, an aesthetically pleasing, illuminated, glass panelled shelter, and better maintenance, passengers have reported feeling safer, residents have developed a sense of 'ownership' of their local shelters and vandalism has reduced.

## Background to SYPTE Bus Shelters

South Yorkshire Passenger Transport Executive took over the responsibility for bus shelters from the local authorities some 10 years ago. At this time, the bus shelters in South Yorkshire were, generally, in a very bad state. Shelters were of various designs. Some were brick or stone designed to blend in with the environment, such as that shown in Figure 1.



*Figure 1: Stone shelter designed to blend in with the environment*

However, as the incoming SYPTE Street Infrastructure Manager, Richard Bowen, explains:

“People tended to wait outside the shelter. They couldn’t see the bus from inside the shelter. They didn’t feel very safe. They didn’t know who was lurking the other side of the wall and these shelters tended to get used as public lavatories.”

Not all shelters were of this design, the most common had a painted metal lower half and a wire-strengthened glass upper half. But there was no illumination in these shelters; people felt little safer than in the brick and stone structures. Shelters were regularly vandalised, the glass smashed, the panels covered with graffiti. The councils had no maintenance budget for the shelters and they became eyesores. A typical shelter from this time is shown in Figure 2.



*Figure 2: A typical pre-SYPTE bus shelter*

The new Operations Manager appointed by SYPTTE was very unhappy with the situation and wanted a new bus shelter design and maintenance programme. He set up a team of 5 staff, led by Richard Bowen, charged with the responsibility for purchasing and maintaining all street infrastructure associated with bus operations, which included bus shelters. This case is based on an interview with Richard Bowen.

## **Design Process**

### **The Brief**

The new bus shelter design process, as explained above, was initiated by the Operations Manager. As Bowen explains:

“ It was his vision. He believed in ‘see and be seen’. His primary concern was public safety. He wanted a shelter where passengers would both feel and be safe”

Vandalism was a secondary issue, but any new shelter design should be easy and cost-effective to maintain, in terms of replacing any broken panels and cleaning. The new shelters needed to house an information carousel, giving bus timetable information and should look good so that local people would take pride in them. Although a 40% contribution towards purchasing cost was to be made by the European Regional Development Fund, price was also a serious consideration. However, the Board of SYPTTE was fully behind the Operations staff and was willing to commit funds to support the new ‘vision’.

### **Finding a Manufacturer**

The first stage of the process involved a search for a suitable manufacturer who would be flexible enough to work with SYPTTE and develop a new design to satisfy the parameters of the brief. The team talked with several manufacturers, but only one was prepared to alter their designs to satisfy SYPTTE’s needs, Abacus. The Operations Manager and Bowen therefore began discussions with the designer at Abacus. Over a ten week period they made some 12 trips to Abacus. These meetings took the form of a two-way exchange of design ideas, followed by translation of these ideas into product modifications by Abacus. The relationship was that of a design partnership between purchaser and supplier rather than an expression of needs by the purchaser and a meeting of those needs by the supplier.

### **Modifications**

The dramatic design modifications made can be seen by comparing the original Abacus design, shown in Figure 3, with the design developed in partnership with SYPTTE, shown in Figure 4.



*Figure 3: Original Abacus bus shelter design*



*Figure 4: New barrel roof design*

Taking the new design features in turn, let us look at how they became incorporated into the final design.

The new floor to roof glazing gives a clear view from inside the shelter outwards and vice versa – a need expressed by SYPTE and satisfied by Abacus.

Continuing the 'see and be seen' requirement, illumination was seen as a necessary element by both supplier and purchaser. This could be achieved in the original design by suspending lighting holders from the flat roof. The Operations Manager was not satisfied with this; it gave an inadequate level of light because of the opaque nature of the roof and could be easily vandalised. It was he, the purchaser, not the designer, who came up with a radical design idea, a translucent barrel roof to solve these problems. Abacus worked on this idea and Figure 4 shows the new design, incorporating the barrel roof, in which the roof is made of translucent polycarbonate and the illumination strips are incorporated into the roof just above the roof base frame. The new roof design also provided a neat solution to the problem of where to put the bus stop location information. Previously this required a display 'flag' or board which was perched on the end of the roof (see Figure 3).

The 'perch' seating is also a design addition. Passengers wish to wait for a bus in some degree of comfort, however, if full seats are installed, this can cause problems with anti-social behaviour. As Bowen explains:

"If we install proper seats, groups of youths tend to gather in them and use them as impromptu youth clubs, particularly on housing estates. This behaviour can feel threatening to passengers and deter them from using the shelters. So Abacus came up with the 'perch' seating. It is somewhere for passengers to rest briefly with their shopping but it doesn't encourage you to sit for very long!"

## Testing

The new shelters were given a 'functionality' test in Rotherham. Bowen explains,

"when the first one went in, everyone from SYPTTE was there from the Board down. We had no bad feedback from anyone, our staff or the passengers. The only modification we needed to make was to add a 'bubble' on the leg to house the electricity fuse. Our design incorporated the fuse into the leg, making a very neat line, but Yorkshire Electricity were unwilling to connect up their supply using this type of fuse, so a 'bubble' had to be added to take the larger fuse, specified by them."

No further modifications were made and the first shelters went onto the streets only 6 months after the first contact was made between SYPTTE and Abacus. After the first batch of shelters were installed local residents and passengers were leafleted and asked what they thought about them, if they were happy with them. No adverse feedback was received and 10 years later the shelters are still the same basic design.

## Impact

The installation of these new shelters has had enormous societal impact. The public's expectation of bus shelters when SYPTTE took over was very low. People felt unsafe in them, they expected them to be dirty, smelly and generally undesirable places to be. The new shelters have changed this. Passengers have reported feeling safer and local residents are no longer so averse to having a shelter put near their houses. The better look of the shelters and better maintenance has instilled a pride of ownership in the local shelters and any damage is reported quickly and is dealt with quickly. For example, graffiti is generally removed within 20 minutes of it being reported. Bowen describes the public now as their eyes and ears,

"We raised their expectations and they have responded".

Although the 'see and be seen' policy has increased passenger safety, vandalism is still a problem in some of the more deprived areas of the region. Although 50% of the shelters had no damage in the last year, glass panels still get smashed, some 100 panels in total per week, and in some areas, where vandalism far exceeds this average figure, they have had to be replaced with polycarbonate panels. These polycarbonate panels are less translucent than glass and look less good, but they are more vandal proof. It would be possible to build shelters for these areas at the outset with polycarbonate panels, however the cost of such a shelter is 3 times that of the glass equivalent, making that option a cost-inefficient solution.

## Lessons Learned

This case demonstrates the design success that comes from a close partnership relationship between supplier and purchaser. Weekly meetings on the supplier's site increased understanding by the purchaser of the supplier's capabilities and allowed the purchaser as well as the supplier to come up with design ideas.

An organisational structure in which purchasing and maintenance budgets are controlled by the same department ensures that in-use costs are taken into account in the design decision.

The case also demonstrates that good design has an impact on society. As people's expectations rise, their behaviour changes and crime can be reduced. The public sector has a key role to play in encouraging companies to develop crime resistant products.

## References, Related Case Studies and Further Reading

DETR (1999) *'Young People and Crime on Public Transport'*. Report by Crime Concern for Department of the Environment, Transport and the Regions: London. Published in May.

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## Classification Index

Ekblom's crime classification	Misbehaviour
BCS crime classification	Criminal damage
DAC	Protecting people and public property.
Primary motivation	Transformation of crime targets, especially in high crime areas.
Type of designer	Manufacturer and Operations Manager
Approach	Creating a sense of safety
Sector	Public Transport
Location	Bus shelters/roads
Author	Anne Tomes

DAC Sypte Bus shelters